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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,496	04/03/2006	Yusaku Inaba	358275.30001	9199
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REED SMITH LLP 3110 FAIRVIEW PARK DRIVE, SUITE 1400 FALLS CHURCH, VA 22042			EXAMINER JACOBSON, MICHELE LYNN	
			ART UNIT	PAPER NUMBER
			1794	
			MAIL DATE	DELIVERY MODE
			01/23/2009 PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/574,496

**Applicant(s)**

INABA ET AL.

**Examiner**

MICHELE JACOBSON

**Art Unit**

1794

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3, 6-8, 10-13 and 15-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 6-8, 10-13 and 15-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1 and 13 objected to because of the following informalities: Claim 1 recites "a stretched formed multilayer container formed by stretching a multilayer sheet or a multilayer preform from at an area draw ratio...". The examiner believes the word from should be deleted from this recitation to make it grammatically correct. Claims 1 and 13 recite "said layer (bc) being formed without heating operation". The examiner believes this recitation should be grammatically corrected to recite "said layer (bc) being formed without a heating operation". Appropriate correction is required.

### ***Terminal Disclaimer***

2. The terminal disclaimer filed on 10/16/08 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted from copending Application No. 10/576878 has been reviewed and is accepted. The terminal disclaimer has been recorded.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 6-8, 10-13 and 15-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohba et al. WO 99/52973 U.S. Patent No. 6,605,344 used herein for reference (hereafter referred to as Ohba).

5. Ohba teaches a gas-barrier film which is produced through application of a metallic compound to a polymer layer formed from a mixture of a poly(meth)acrylic acid polymer and a polyalcohol such as sugar. The present invention provides a gas-barrier film which exhibits excellent oxygen-gas-barrier properties, particularly in an atmosphere of high humidity, and which is suitably used in sterilization treatment such as retorting or boiling. (Col. 1, lines 5-15) The metallic-compound-containing layer which is applied to the surface of a polymer layer may be a layer containing a metallic compound alone, or a layer containing a resin in which a metallic compound is mixed or dispersed. (Col. 2, lines 48-52) Transition metals having an oxidation number of +2 are preferable for the metallic compound in the polymer layer. (Col. 7, lines 17-18)

6. In the film of the present invention in which a metallic-compound-containing layer is applied to the surface of a polymer layer formed from a mixture of a poly(meth)acrylic acid polymer and a polyalcohol, a metal invades the polymer layer from the metallic-

compound-containing layer. As described below, invasion of a metal can be confirmed by means of energy-dispersive X-ray spectroscopy (EDX). The existence ratio in the polymer layer (the number of counting of metallic atoms/the number of counting of oxygen atoms) is 0.1-20 at a position 0.1  $\mu\text{m}$  deep in a polymer layer from the interface between the polymer layer and a layer containing a metallic compound solely or a layer of a mixture of metallic compound and resin, preferably 0.5-10. When the existence ratio is high, the amount of a metallic compound in a polymer layer is large. (Col. 3, lines 22-36)

7. As used in Ohba, the term "polyalcohol" refers to low molecular weight compounds containing two or more hydroxyl groups, alcohol polymers, polyvinyl alcohols (PVA), sugars, and starches. Examples of low molecular weight compounds containing two or more hydroxyl groups include glycerin, ethylene glycol, propylene glycol and polyethylene glycol. The sugars recited to be included in the polyalcohol recitation include sugar alcohols such as mannitol, dulcitol and erythritol. In consideration of production of a polymer layer exhibiting excellent oxygen-gas-barrier properties under high humidity, the mixture ratio (by weight) of poly(meth)acrylic acid polymer to polyalcohol is preferably 99:1-20:80, more preferably 95:5-40:60, much more preferably 95:5-50:50. (Col. 5, lines 10-31 and 50-55)
8. The gas-barrier film of the present invention and the laminated gas-barrier film produced therefrom exhibit excellent oxygen-gas-barrier properties in an atmosphere of high humidity. Therefore, the films are suitably employed for packaging material of beverages or foods susceptible to oxygen, such as furikake (processed seasoning

granules), wine, dried bonito, miso, ketchup, and snacks. Particularly, the films are suitably employed for packaging material of foods which undergo sterilization treatment such as retorting or boiling, such as curry, stew, broth, sauce, and corn. The films are employed in the form of, for example, bag, casing, pouch, or capping material. (Col. 10, line 62-Col. 11, line 6)

9. The laminate of the invention is recited to produce a polymer film exhibiting excellent gas-barrier properties; i.e., a polymer layer having a thickness of 2  $\mu\text{m}$  has an oxygen permeability of  $2.0 \times 10^{-12} \text{ mol/m}^2 \cdot \text{s} \cdot \text{Pa}$  ( $400 \text{ cm}^3/\text{m}^2 \cdot 24\text{h} \cdot \text{atm}$ ) or less as measured at 30° C. and 80% RH. (Col. 9, lines 37-41) A polymer layer, such as a polymer film, a laminate comprising a substrate and a film, or a polymer layer to which a metallic-compound-containing layer is applied may be subjected to heat treatment. (Col. 9, lines 42-47) After completion of heat treatment, the resultant polymer layer has water resistance and exhibits excellent gas-barrier properties under high humidity. (Col. 9, lines 47-54)

10. Ohba recites a gas barrier film comprising a layer of polycarboxylic acid polymer mixed with a polyalcohol (the polyalcohols recited by Ohba being the same as the plasticizers recited by applicant) in a ratio within the ranges claimed by applicant and a layer comprising a bivalent metal compound and resin which is the same composition as claimed by applicant exhibiting an oxygen permeability the same as that claimed by applicant. Ohba is silent regarding stretch forming of the laminate recited, but does recite that the laminate film would be useful for packaging a multitude of varying products including items requiring sterilization under retort conditions. Stretch forming

laminate sheets into containers is universally known in the packaging art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the laminate film taught by Ohba to produce stretch formed containers that were capable of undergoing retort sterilization by combining the heating step recited to improve the barrier properties with the stretch forming step. In such an instance, the plasticizer containing polycarboxylic acid layer (applicant's (bc)) would be *formed* on the substrate layer without a heating operation, with subsequent heating being performed during the stretch forming step. It is noted that applicant's independent claims 1 and 13 only require that the layer (bc) is *formed* without a heating operation, but does *not* exclude the layer from being subject to heat treatment *after* the formation of the layer. Production of such containers utilizing the invention disclosed by Ohba would have produced the invention and method as claimed in claims 1, 6-8, 10, 13, 16-20. The film disclosed by Ohba used to make stretch formed containers would have served as the multilayer sheet or preform claimed in claims 11 and 12.

11. Regarding claims 13 and 21-23: Claims 13 and 21-23 recite an area draw ratio of between 1.1 and 100, 50, 25 and 5 times respectively. It is well known in the polymer arts to vary the result effective variable of the area draw ratio of a stretch formed container to vary the thickness of the walls of the container formed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized the draw ratio of the obvious method of stretch forming depending on the desired thickness of the container to be produced. This obvious optimization of a

result effective variable would have produced the invention as claimed in claims 13 and 21-13.

12. Since the application of the metal containing resin layer to the polycarboxylic acid layer mixed with a plasticizer is intended to increase the oxygen barrier property of the polymer film it would have been obvious to one having ordinary skill in the art at the time the invention was made to have disposed another metal containing resin layer on the other side of the polycarboxylic acid layer to further increase the barrier properties of the film. This obvious modification of the invention recited by Ohba would have produced the invention and method as claimed in claims 3 and 15.

13. Regarding claims 21-23: It is quite common in the stretch forming art to perform the heating treatment of a substrate prior to stretching the substrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have heated the multi-layer film disclosed by Ohba prior to stretch forming of the film. This obvious rearrangement of method steps would have produced the method claimed in claims 21-23.

### ***Response to Arguments***

14. Applicant's arguments filed 10/16/08 have been fully considered but they are not persuasive. Applicant has asserted on pages 7 and 8 of the remarks that the plasticizer containing polycarboxylic acid film recited by Ohba (bc) requires heat treatment in order to obtain sufficient barrier properties. As a result, applicant asserts that Ohba cannot be



relied upon to obviate the limitations of claims 1 and 13 since claims 1 and 13 recite that "said layer (bc) being formed without a heating operation". However, as explained above, this limitation does not exclude heating of layer (bc) being performed, only that the heating is not performed during the forming step of layer (bc). As such, heating after the layer (bc) has been formed on a substrate meets the limitations of claims 1 and 13 since the layer does not under go heat treatment while being formed.

15. Applicant has asserted on page 8 of the remarks that the multilayer container of the invention has better performance and lower production costs and has referenced pg. 6, lines 5-12 and pg. 42, lines 1-7 to provide support. However, pg. 6, lines 5-12 of applicant's specification refer to cancelled claims 4 and 5 and pg. 42, lines 1-7 do not exist in the English version of applicant's specification. It is therefore unclear what applicant is referencing. Applicant has further asserted that these effects are unexpected from Ohba, but has not presented any reasoning as to why one of ordinary skill would not have expected the results claimed.

16. On page 8 of the remarks, Applicant has endeavored to compare the inventive film to Ohba by comparing the lowest values of oxygen permeability coefficient provided in the specification ( $200$  (or even  $100$ )  $\text{cm}^3(\text{STP}) \mu\text{m}/(\text{m}^2 \cdot \text{day} \cdot \text{MPa})$ ) with the highest value of the range provided by Ohba, which applicant has converted from the oxygen transmission rate to be  $3.948 \text{ cm}^3(\text{STP}) \mu\text{m}/(\text{m}^2 \cdot \text{day} \cdot \text{MPa})$ . Applicant has asserted that the oxygen permeability coefficient calculated for Ohba is much worse than the present invention, even though low values are disclosed to be desired. By applicant's own calculations, the oxygen permeability coefficient of Ohba is two orders of magnitude

smaller than that claimed by applicant and therefore superior. It is unclear how this argument is germane to refuting the applicability of Ohba.

17. The examiner further notes that in all of applicant's examples in the specification, the multilayer film is stretch formed by heating to produce a container with the desired low oxygen permeability. As such, applicant has not demonstrated that the inventive film still obtains the same low oxygen permeability without some form of heating. Ohba clearly states that the heating step does not need to be performed while the polycarboxylic acid layer is being formed and can instead be undertaken after the film is formed on a substrate. Heat stretching the multilayer film, still involves a heating step that would be expected to impart the desirable barrier properties to the stretched film as those disclosed by heating the film of Ohba.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHELE JACOBSON whose telephone number is (571)272-8905. The examiner can normally be reached on Monday-Thursday 8:30 AM-7 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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